

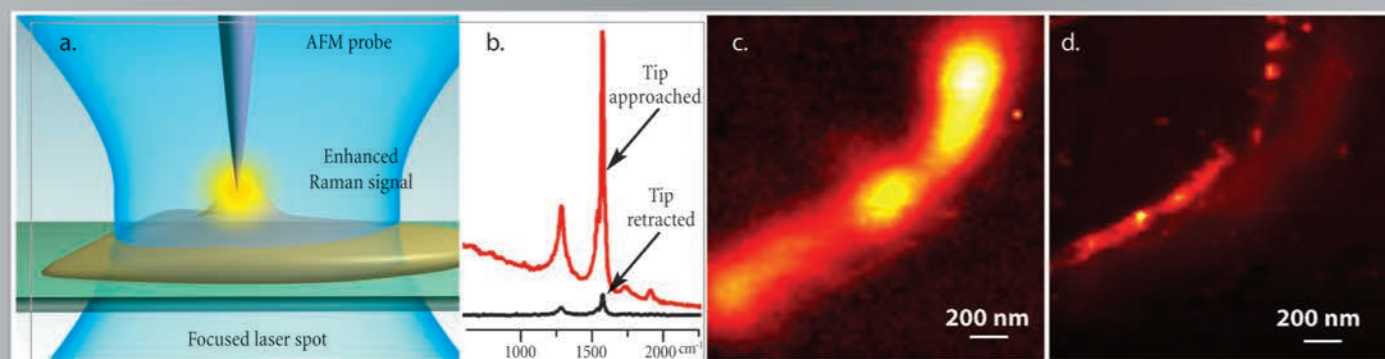
Colours do not play at nanometer scale

But you can colour molecules by their Raman spectra.



Raman mapping by TERS with ultra-high resolution

NTEGRA Spectra



a — a specially prepared AFM probe (metal coated cantilever or etched metal wire) is precisely positioned inside a tightly focused laser spot. b — intensity of carbon nanotube G- and D- Raman bands increases by several orders of magnitude when the special AFM probe is landed and positioned over a small (5 nm height) nanotube bundle - the effect of Tip enhanced Raman scattering (TERS). c — "conventional" confocal Raman image of the nanotube bundle, the observed width of the bundle is ~250 nm (diffraction limit of confocal microscopy, laser

wavelength - 633 nm). d — TERS image of the same bundle - now the observed width is ~70 nm. Note, in this example, TERS provides more than 4-times better spatial resolution as compared to confocal microscopy. Resolution down to 10 nm and less is theoretically possible. Measurements are done with NTEGRA Spectra in Inverted configuration. Data courtesy of Dr. S. Kharintsev, Dr. J. Loos, Dr. G. Hoffmann, Prof. G. de With, TUE, the Netherlands and Dr. P. Dorozhkin, NT-MDT Co.

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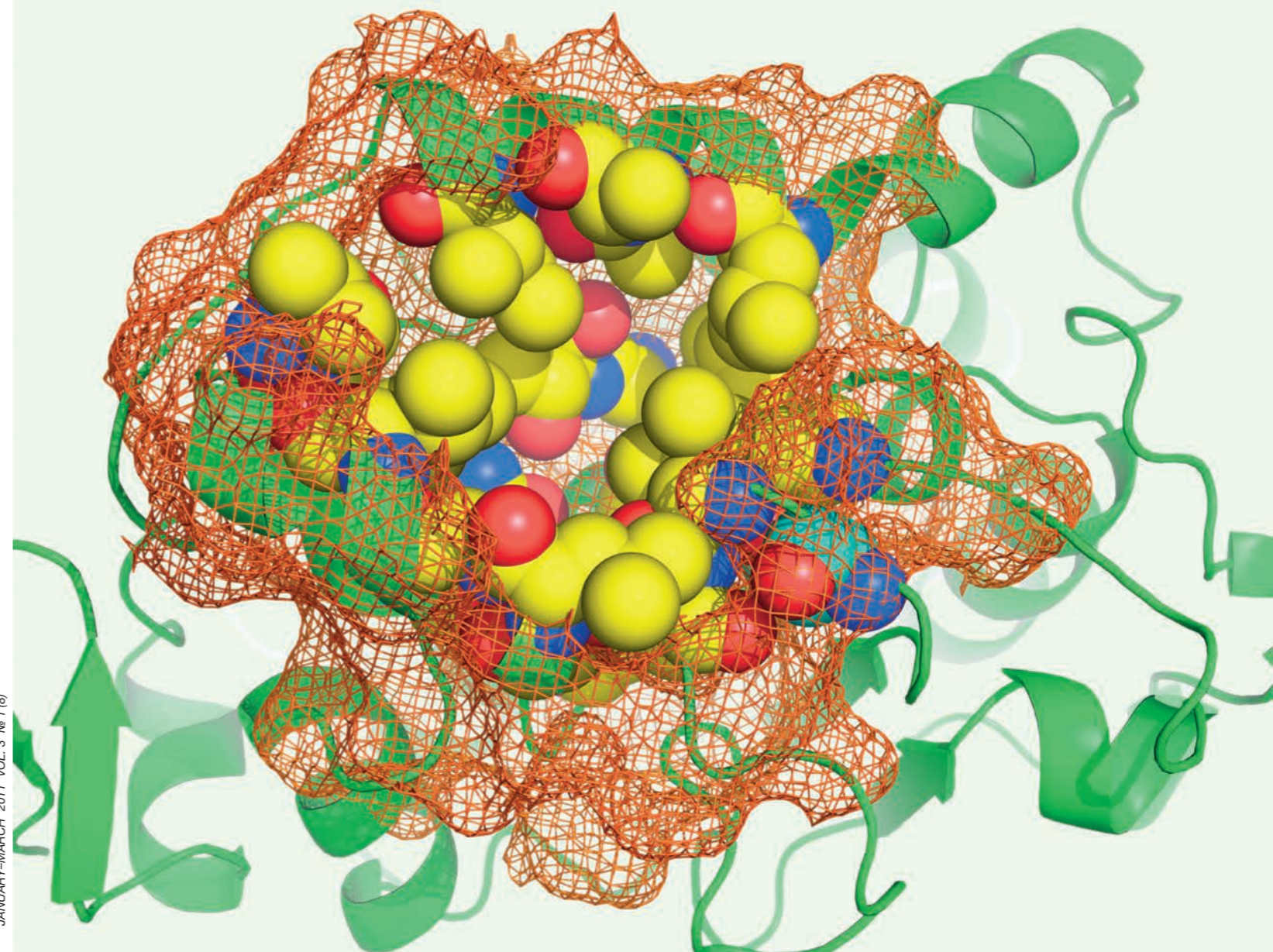


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